

## **REMARKS**

Claims 1-13 and 16-39 are presently pending in this application. Claims 1, 2, 19, 23, 27, 29, 32 and 36 have been amended to more distinctly claim and particularly point out the present invention. In particular, the phrase “organic solvent based” has been deleted from independent claims 1, 19, 23, 27, 29, 32 and 36. It is believed that the recitation of “organic solvent based” is not necessary to distinctly claim and particularly point out the Applicants’ invention. Also, the phrase “the thermoplastic polyurethane resin and organic solvents form a homogeneous solution” has been deleted from claim 2, and incorporated into independent claims 1, 19, 23, 27, 29, 32 and 36. Support for the amendments to claims 1, 19, 23, 27, 29, 32 and 36 can be found in the specification at, for example, original claims 1, 19, 23, 27, 29, 32 and 36, respectively, and original claim 2. Support for amended claim 2 can be found in the specification in original claim 2 and, for example, on page 7, lines 24-25 of the specification. It is believed that the amendments to the claims do not introduce new matter and do not raise new issues.

Accordingly, approval and entry of the above amendments, and reconsideration and allowance of the present application are respectfully requested.

### **I. CLAIMS 12-13 ARE PROPER UNDER 37 C.F.R. § 175(c)**

The Examiner has objected to claims 12-13 under 37 C.F.R. § 175(c), alleging that the claims are of “improper format for failing to further limit the subject matter of a previous claim” (Office Action, page 2, ¶ 2).

As discussed above, claim 1, upon which claims 12 and 13 depend, has been amended to remove the phrase “organic solvent based” from claim 1. Applicants respectfully submit that the amendment to claim 1 renders the objection to claims 12-13 moot, and request that the objection under 37 C.F.R. § 175(c) be withdrawn, and that claims 12-13 be allowed.

### **II. CLAIMS 12-13 ARE NOT INDEFINITE**

The Examiner has rejected claims 12-13 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for the reasons provided in the Office Action on page 3, ¶ 4.

Claim 1, upon which claims 12 and 13 depend, has been amended to remove the phrase “organic solvent based” from the preamble of the claim. Applicants respectfully submit that the amendment to claim 1 renders the objection to claims 12-13 moot, and request

that the indefiniteness rejection under 35 U.S.C. § 112, second paragraph be withdrawn, and that claims 12-13 be allowed.

**III. CLAIMS 1-13, 16-23, 26-28 AND 36 ARE PATENTABLE OVER U.S. PATENT NO. 6,387,984 TO ITO IN VIEW U.S. PATENT NO. 4,146,699 TO COOK**

Claims 1-13, 16-23, 26-28 and 36 stand rejected under 35 U.S.C. § 103 as allegedly being obvious over U.S. Patent No. 6,387,984 to Ito (“Ito”) in view of U.S. Patent No. 4,146,699 to Cook (“Cook”). The Office Action stated: “The rejection is adequately set forth in paragraph 3 of the office action mailed 1/7/03, Paper No. 6, and is incorporated here by reference” (Office Action, 4, ¶ 6). This rejection is respectfully traversed.

Independent claims 1, 19, 23, 27, and 36, as amended herein, recite an “ink composition for a writing instrument comprising an isocyanate free thermoplastic polyurethane resin, an organic solvent . . . wherein . . . the thermoplastic polyurethane resin and organic solvent form a homogeneous solution.” Claims 2-13 and 16-18 depend from claim 1. Claims 20-22 depend from claim 19. Claim 26 depends from claim 23, and claim 28 depends from claim 27. These dependent claims also include the limitations of the independent claims from which they depend.

As acknowledged by the Examiner, Ito does not disclose or suggest isocyanate free polyurethane (Office Action mailed January 7, 2003, page 3, ¶3). Ito also does not disclose or suggest a polyurethane resin and organic solvent that form a homogeneous solution as required by the present claims.

Ito is drawn to an *aqueous* ink composition, and states: “The present aqueous ink composition comprises water” (col. 8, line 22). The ink of Ito further comprises from 1 to 40% by weight of a water-soluble organic solvent (col. 8, lines 11-13). Ito further discloses that his ink may include a dispersant (col. 8, lines 38-42), such as “water-soluble urethane resins” or “urethane emulsion” (col. 8, lines 54-56). However, Applicants respectfully note that Ito does not disclose, teach or suggest the use of a urethane resin that is soluble in organic solvent. In fact, Ito’s requirement that the urethane resin be *water soluble* or form an *emulsion* teaches away from the use of a urethane resin that forms a homogenous solution such as claimed in the present application.

Cook does not remedy the deficiencies of Ito. Cook is drawn to a process for preparing modified polyurethane resins. Cook does not disclose or suggest the use of his modified polyurethane resins in an ink composition for a writing instrument.

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 985 (CCPA 1974). A reference that teaches away from another reference defeats an obviousness rejection based on a combination of the references. *Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349-1350 (Fed. Cir. 2000).

There is no motivation to combine the teachings of Ito and Cook to obtain the presently claimed invention, where Ito teaches away from the use of a thermoplastic polyurethane resin and an organic solvent that form a homogenous solution, and Cook does not even disclose or suggest the use of its polyurethane resin in an ink composition. Because Ito discloses the use of a urethane resin that is *water-soluble* or forms a urethane *emulsion* thereby teaching away from the use of a thermoplastic polyurethane resin and an organic solvent that form a homogenous solution as recited in the present claims, one of ordinary skill in the art would not be motivated to use a thermoplastic polyurethane resin and an organic solvent that form a homogeneous solution as recited in the present claims, in the ink composition of Ito.

Accordingly, it is believed that Ito in view of Cook does not disclose or suggest the presently claimed ink composition in which “the thermoplastic polyurethane resin and organic solvents form a homogeneous solution.”

Therefore, it is believed that claims 1-13, 16-23, 26-28 and 36 are patentable over Ito in view of Cook for at least the reasons provided above. Accordingly, Applicants respectfully request that the rejection of claims 1-13, 16-23, 26-28 and 36 under 35 U.S.C. § 103 as obvious over Ito in view of Cook be withdrawn, and that claims 1-13, 16-23, 26-28 and 36 be allowed.

**IV. CLAIMS 24-25 ARE NOT OBVIOUS OVER ITO IN VIEW OF COOK AND FURTHER IN VIEW OF U.S. PATENT NO. 4,686,246 TO GAJRIA ET AL.**

Claims 24-25 stand rejected under 35 U.S.C. § 103 as allegedly obvious over Ito in view of Cook and further in view of United States Patent No. 4,686,246 to Gajria et al. (“Gajria”) for the reasons provided in the Office Action, page 4, ¶ 7. Applicants respectfully traverse.

Claims 24 and 25 depend from claim 23 which was shown above to be patentable over Ito and Cook. As noted above, the present claims requires that a “thermoplastic polyurethane resin and organic solvent form a homogeneous solution,” which requirement is

not disclosed or suggested by Ito in view of Cook (*see* Section III, *supra*). This deficiency is not overcome by Gajria.

Gajria is directed to an ink having a shear rate no greater than 100 mPa·S (100 cps). Gajria discloses the use of polyurethane as a “shock resistant providing material,” which is “particular substantially *water insoluble* but water dispersible” (col. 4, line 2; col. 3, lines 42-43).

As discussed in Section III, Ito discloses a “water-soluble urethane resin” or “urethane emulsion” as a dispersant. Thus, Ito teaches away from the use of a water insoluble urethane resin as taught by Gajria.

Because Ito teaches away from the use of a water insoluble resin, one of ordinary skill in the art would find no motivation to combine Ito with Gajria, which teaches the use of a water insoluble resin. As discussed above, there is also no motivation to combine the teachings of Ito and Cook to obtain the present invention. Therefore, it is believed that claims 24-25 are not obvious over Ito in view of Cook and further in view of Gajria for the reasons provided above.

Accordingly, Applicants respectfully request that the rejection of claims 24-25 under 35 U.S.C. § 103 as obvious over Ito in view of Cook and further in view of Gajria be withdrawn, and that claims 24-25 be allowed.

**V. CLAIMS 37-39 ARE NOT OBVIOUS OVER ITO IN VIEW OF COOK AND FURTHER IN VIEW OF U.S. PATENT NO. 6,454,846 TO YATAKE**

Claims 37-39 stand rejected under 35 U.S.C. § 103 as allegedly obvious over Ito in view of Cook and further in view of United States Patent No. 6,454,846 to Yatake (“Yatake”) for the reasons provided in the Office Action, page 4, ¶ 8. This rejection is respectfully traversed.

Claims 37-39 depend from claim 36 which was shown above to be patentable over Ito and Cook. As noted above, the presently claimed ink composition requires that a “thermoplastic polyurethane resin and organic solvent form a homogeneous solution,” which requirement is not disclosed or suggested by Ito in view of Cook (*see* Section III, *supra*). This deficiency is not overcome by Yatake.

Yatake is directed to an ink jet recording ink comprising a colorant, water, and an ethylene oxide/propylene oxide compound. However, Yatake does not disclose or suggest a urethane resin, let alone a thermoplastic polyurethane resin and an organic solvent that form a

homogeneous solution. Moreover, Yatake does not even disclose or suggest an ink composition for a writing instrument.

As noted above, to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d at 985.

Ito in view of Cook and further in view of Yatake does not disclose, teach or suggest an ink composition with a thermoplastic resin and organic solvent that form a homogeneous solution as required by claims 37-39. Therefore, claims 37-39 are not obvious over Ito in view of Cook and further in view of Yatake, since that combination of references does not teach or suggest all the limitations of claims 37-39. Accordingly, Applicants respectfully request that the rejection of claims 37-39 under 35 U.S.C. § 103 as obvious over Ito in view of Cook and further in view of Yatake be withdrawn, and that claims 37-39 be allowed.

**VI. CLAIMS 29-31 ARE NOT OBVIOUS OVER ITO IN VIEW OF COOK AND FURTHER IN VIEW OF EITHER U.S. PATENT NO. 5,059,246 TO YAMAMOTO ET AL. OR U.S. PATENT NO. 4,077,807 TO KRAMER ET AL.**

Claims 29-31 stand rejected under 35 U.S.C. § 103 as allegedly obvious over Ito in view of Cook and further in view of either United States Patent No. 5,059,246 to Yamamoto et al. (“Yamamoto”) or United States Patent No. 4,077,807 to Kramer et al. (“Kramer”) for the reasons provided in the Office Action, page 5, ¶ 9. Applicants respectfully traverse.

Independent claim 29 recites an “ink composition for a writing instrument comprising an isocyanate free thermoplastic polyurethane resin, an organic solvent . . . wherein . . . the thermoplastic polyurethane resin and organic solvent form a homogeneous solution.” Claims 30-31 depend from claim 29 and thus also include these limitations.

For the reasons discussed above in Section III, it is believed that claims 29-31 are patentable over Ito in view of Cook. As noted above, Ito and Cook do not disclose or suggest a thermoplastic polyurethane resin wherein the “thermoplastic polyurethane resin and organic solvent form a homogeneous solution.” This deficiency is not overcome by Yamamoto or Kramer as explained below.

**A. Yamamoto**

Yamamoto is directed to a recording liquid comprising a coloring material and a liquid medium containing water and a water-soluble organic solvent. Yamamoto discloses that “polyurethane is suitable for the material of the ink absorber,” a device which is attached

to the ink storing member (col. 8, lines 17-29). However, Yamamoto does not disclose, teach or suggest an ink composition comprising a thermoplastic polyurethane polymer that forms a homogeneous solution with an organic solvent. In addition, Yamamoto does not disclose or suggest an ink composition for a writing instrument.

Ito in view of Cook and further in view of Yamamoto does not disclose, teach or suggest an ink composition where a “thermoplastic polyurethane resin and organic solvent form a homogeneous solution” as required by claims 29-31. Moreover, there is no motivation to combine the teachings of Ito, Cook, and Yamamoto, particularly where Ito teaches away from the use of a polyurethane polymer and organic solvent that form a homogeneous solution, and Cook and Yamamoto do not even disclose or suggest an ink composition for a writing instrument.

Therefore, it is believed that claims 29-31 are patentable over Ito in view of Cook and further in view of Yamamoto, since that combination of references does not teach or suggest all the limitations of claims 29-31.

#### **B. Kramer**

Kramer is directed to methods of “safeguarding the ink charge of a ball point pen against degradation due to migration in through the air-permeable plastic wall of the cartridge, of *moisture* and oxygen” (col. 3, lines 21-25). (Emphasis added.) The inks useful for Kramer’s invention comprise about 30-70 weight percent of a polar organic solvent, about 1-25 weight percent soluble fatty acid, about 5-50 weight percent soluble resin and suitable colorant (col.7, lines 9-14). Kramer is directed to preventing moisture from entering the ink composition and “reacting with the ball point ink and the metal constituents of the cartridge assembly to form metallic ions which react with ingredients of the ink proper to form a flow-blocking crystal mass” (Abstract). However, Kramer does not disclose or suggest any urethane resin.

Ito in view of Cook and Kramer does not a teach or suggest an ink composition in which a “thermoplastic polyurethane resin and organic solvent form a homogeneous solution” as required by claims 29-31. Since the combination of Ito, Cook and Kramer does not suggest an ink composition in which a “thermoplastic polyurethane resin and organic solvent form a homogeneous solution,” one skilled in the art would find no motivation to prepare the claimed ink composition. Therefore, claims 29-31 are patentable over Ito in view of Cook and further in view of Kramer for at least this reason.

In addition, as discussed above, Ito is directed an *aqueous* ink composition, *i.e.*, an ink composition that contains water (Ito, col. 8, line 22). Therefore, one skilled in the art would not look to combine Kramer, which teaches away from the use or inclusion of water in an ink composition, with the aqueous ink of Ito. Because Kramer teaches away from the use of water in an ink composition and Ito requires the use of water, one of ordinary skill in the art would find no motivation to combine the teachings of Kramer with Ito. Therefore, Applicants respectfully submit that claims 29-31 are patentable over Ito in view of Cook and further in view of Kramer.

In summary, Applicants respectfully submit that claims 29-31 are not obvious over Ito in view of Cook and further in view of Yamamoto or Kramer for the reasons provided above. Accordingly, Applicants request that the rejection of claims 29-31 be withdrawn, and that claims 29-31 be allowed.

**VI. CLAIMS 32-35 ARE PATENTABLE OVER ITO IN VIEW OF COOK AND FURTHER IN VIEW OF U.S. PATENT NO. 4,471,079 TO ENAMI**

Claims 32-35 stand rejected under 35 U.S.C. § 103 as allegedly obvious over Ito in view of Cook and further in view of United States Patent No. 4,471,079 to Enami (“Enami”) for the reasons provided in the Office Action, page 5, ¶ 10. Applicants respectfully disagree.

Independent claim 32 recites an “ink composition for a writing instrument comprising an isocyanate free thermoplastic polyurethane resin, an organic solvent . . . wherein . . . the thermoplastic polyurethane resin and organic solvent form a homogeneous solution.” Claims 33-35 depend from claim 32 and thus also include the limitations of claim 32.

As noted above, because Ito teaches away from a “thermoplastic polyurethane resin and organic solvent [that] form a homogeneous solution”, there is no motivation to combine the teachings of Ito and Cook. (see Section III, *supra*). This deficiency is not overcome by Enami.

Enami is directed to an aqueous ink comprising “as the main component an *emulsion* of a polymeric dyestuff which is prepared by bonding a water-insoluble polymer including amino groups with an anion-type dye or with a reactive dye” (col. 3, lines 8-12). (Emphasis added.) Enami teaches that polyurethane can be used as a “water-insoluble polymer for use in preparing the polymeric dyestuff” (col. 3, lines 13-14 and 35). (Emphasis added.) However, Enami does not disclose, suggest or teach an ink composition containing a homogeneous solution of a polyurethane resin in an organic solvent.

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d at 985.

Neither Ito, Cook nor Enami, whether taken alone or in combination, disclose or suggest an ink composition in which a “thermoplastic polyurethane resin and organic solvent form a homogeneous solution.” Ito in view of Cook and further in view of Enami does not disclose, teach or suggest an ink composition in which a “thermoplastic polyurethane resin and organic solvent form a homogeneous solution” as presently claimed. Since Ito in view of Cook and further in view of Enami does not teach or suggest all the limitations of claims 32-35, claims 32-35 are not obvious over that combination of references for this reason.

Moreover, one of ordinary skill in the art would not find motivation to combine the teachings of Ito, Cook, and Enami, particularly where Ito teaches away from a “thermoplastic polyurethane resin and organic solvent [that] form a homogeneous solution.” Therefore, claims 32-35 are patentable over Ito in view of Cook and further in view of Enami for at least this reason, too.

For the reasons provided above, Applicants respectfully request that the rejection of claims 32-35 under 35 U.S.C. § 103 as obvious over Ito in view of Cook and further in view of Enami be withdrawn, and that claims 32-35 be allowed.



**VII. CONCLUSION**

In light of the above amendments and remarks, Applicants respectfully submit that all objections and rejections have been overcome and that the present claims are now in condition for allowance, and request an early issuance of a Notice of Allowance in connection with the present application. The Examiner is invited to call the undersigned attorney if a telephone call could help resolve any remaining items.

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